Listing of Claims:

The following listing of claims replaces all previous listings or versions thereof:

1. (Currently amended) Recombinant seven-transmembrane receptor, whereby the amino terminus of said recombinant receptor is located on an extracellular side and the carboxy-terminus is located on an intracellular side of a membrane, comprising at least two detectable labels, whereby

   a first of said at least two detectable labels is, or is located on, the carboxy-terminus and whereby a second of said at least two labels is, or is located on, the first or third intracellular loop; or whereby a first of said at least two labels is, or is located on, the first intracellular loop and a second of at said at least two labels is, or is located on, the third intracellular loop, and further wherein the first and second labels are detectable by resonance energy transfer.

2. (Previously presented) Recombinant membrane receptor of claim 1, whereby said first label is, or is located on, the third intracellular loop of said membrane receptor and wherein said second label is, or is located on, the carboxy terminus.

3. (Previously presented) Recombinant membrane receptor of claim 1, whereby said membrane receptor is a G-protein-coupled receptor or a proto-oncogene.

4. (Original) Recombinant membrane receptor of claim 1, whereby the proto-oncogene is Smoothened receptor (Smo) or whereby said G-protein-coupled receptor (GPCR) is selected from the group consisting of a rhodopsin/β2 adrenergic receptor-like GPCR, a

glucagon/VIP/calcitonin receptor-like GPCR and a metabotropic neurotransmitter/ calcium receptor.

5. (Original) Recombinant membrane receptor of claim 4, whereby said rhodopsin/β2-adrenergic receptor-like GPCR is the α2A adrenergic receptor or the adenosine receptor A2A or wherein said glucagon/VIP/calcitonin receptor-like GPCR is the parathyroid hormone (PTH) receptor.

6. (Currently amended) Recombinant membrane receptor of claim 3, whereby said G-protein-coupled receptor is prepared from a human or mouse G-protein-coupled receptor or said proto-oncogene is prepared from human or mouse proto-oncogene~~of human or of mouse origin~~.

7. (Previously presented) Recombinant membrane receptor of claim 1, whereby said detectable labels are fluorescent labels or bioluminescent labels.

8. (Currently amended) Recombinant membrane receptor of claim 7, whereby said fluorescence labels are selected from the group consisting of green fluorescent protein, yellow fluorescent protein, cyan fluorescent protein, blue fluorescent protein~~GFP, YFP, CFP, BFP~~, citrine, sapphire and dsRed, whereby said bioluminescent labels is luciferase ~~(like renilla luciferase or firefly luciferase)~~, or whereby said fluorescence label is produced by binding a fluorescein arsenical helix binder [[the FlAsH]] compound to

specific epitopes of said 1st and 3rd loop or said C-terminus of the recombinant seven-transmembrane receptor.

9. (Currently amended) Recombinant membrane receptor of claim 3, whereby said G-protein-coupled receptor comprising at least two labels is selected from the group consisting of:

(a) a polypeptide as shown in SEQ ID NOS: 12,14, 16, 40 or 42;

(b) a polypeptide encoded by a nucleic acid sequence as depicted in any one of SEQ ID NOS:11, 13, 15, 39 or 41;

(c) a recombinant membrane receptor of claim 3 encoded by a nucleotide sequence which hybridizes to a nucleotide sequence as defined (b) under stringent hybridization conditions; and

(d) a recombinant membrane receptor of claim 3 encoded by a nucleic acid sequence being degenerate as a result of the genetic code to a nucleic acid sequence as defined in (b) or (c).

10. (Currently amended) Recombinant membrane receptor of claim 3, wherein the third intracellular loop being or comprising said first label is selected from the group consisting of

(a) a polypeptide depicted in SEQ ID NOS: 18, 22 or 26;

(b) a polypeptide encoded by a nucleic acid sequence as depicted in

SEQ ID NOS : 17, 21 or 25;

(c) a third intracellular loop encoded by a nucleotide sequence which hybridizes to a nucleotide sequence as defined (b) under stringent conditions; and

(d) a third intracellular loop encoded by a nucleic acid sequence being degenerate as a result of the genetic code to a nucleic acid sequence as defined in (b) or (c).

11. (Withdrawn) A nucleic acid molecule encoding the recombinant seven-transmembrane receptor of claim 1.

12. (Withdrawn) A vector comprising the nucleic acid molecule of claim 11.

13. (Withdrawn) The vector of claim 12, which is an expression vector.

14. (Withdrawn) A host transformed with the vector of claim 12 or transfected with the nucleic acid molecule of claim 11.

15. (Withdrawn) The host of claim 14 which is a mammalian cell, an amphibian cell, a fish cell, an insect cell, a fungal cell, a plant cell or a bacterial cell, or a transgenic non-human animal.

16. (Withdrawn) The host of claim 15, wherein said mammalian cell is a CHO-cell or a HEK293 cell, a PC12 cell, a (primary) cardiomyocyte or a cultured neuronal cell.

17. (Withdrawn) The host of claim 15, wherein said amphibian cell is an oocyte, preferably a xenopus oocyte.

18. (Withdrawn) A method for producing a recombinant membrane receptor of claim 1 comprising culturing/raising the host of claim 14 and, optionally, isolating the produced polypeptide.

19. (Withdrawn) A method for identifying molecules or compounds which are capable of activating, deactivating or inactivating the (biological/pharmacological) function of a seven-transmembrane receptor, comprising the steps of

(a) contacting the recombinant membrane receptor of claim 1 or a host or a host cell of claim 14 with (a) molecule(s) or compound(s) to be tested; and

(b) measuring whether said molecule(s) or compound(s) to be tested lead(s) to a modification of a signal provided by said at least two detectable labels.

20. (Withdrawn) A method of screening for molecules or compounds which are activators (agonists) or inhibitors (antagonists) of the (biological/pharmacological) function of a seven-transmembrane receptor comprising the steps of

(a) contacting a recombinant membrane receptor of claim 1 or a host or a host cell of claim 14 with the molecule or compound to be tested;

(b) measuring and/or detecting a response comprising a modification of a signal provided by said at least two detectable labels; and

(c1) comparing said response to a standard response as measured in the absence of said candidate molecule/compound

(c2) comparing said response to the response of a control membrane receptor which comprises at least two detectable labels on the C-terminus; or

(c3) comparing said response to control seven-transmembrane receptor which comprises only one detectable label.

21. (Withdrawn) A method for identifying molecules or compounds which are capable of eliciting a (biological/pharmacological) response of a seven-transmembrane protein, comprising the steps of

(a) contacting a membrane protein of claim 1, or a host or host cell of claim 14 with the molecule or compound to be tested; and

(b) identifying among these molecules/compounds the molecules/compounds which are capable of eliciting a change in energy emitted by said at least two detectable labels comprised on the recombinant membrane receptor of claim 1.

22. (Withdrawn) The method of claim 19, whereby said response or said energy change is an increase or a decrease of fluorescence resonance energy transfer (FRET).

23. (Withdrawn) The method of claim 19, whereby said response or said energy change is an increase or a decrease of bioluminescent resonance energy transfer (BRET).

24. (Previously presented) A diagnostic composition comprising the recombinant membrane protein of claim 1 or the nucleic acid molecule of claim 11, the vector of claim 12, the host cell of claim 14 or organs or cells of the non-human transgenic animal as defined in claim 15.

25. (Previously presented) A kit comprising the recombinant membrane protein of claim 1 or the nucleic acid molecule of claim 11, the vector of claim 12, the host cell of claim 14 or organs or cells of the non-human transgenic animal as defined in claim 15.

26. (Withdrawn) Use of the recombinant membrane protein of claim 1 or the nucleic acid molecule of claim 11, the vector of claim 12, the host cell of claim14 or organs or cells of the non- human transgenic animal as defined in claim 15 for the detection of (a) modifier (s) of the biological activity of seven-transmembrane receptors in vivo or in vitro.

27. (Withdrawn) The method of claim 20, whereby said response or said energy change is an increase or a decrease of fluorescence resonance energy transfer (FRET).

28. (Withdrawn) The method of claim 20, whereby said response or said energy change is an increase or a decrease of bioluminescent resonance energy transfer (BRET).

29. (Withdrawn) The method of claim 21, whereby said response or said energy change is an increase or a decrease of fluorescence resonance energy transfer (FRET).

30. (Withdrawn) The method of claim 21, whereby said response or said energy change is an increase or a decrease of bioluminescent resonance energy transfer (BRET).

31. (New) Recombinant membrane receptor of claim 1, whereby the labels are detectable by fluorescence or bioluminescence.